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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,012	01/08/2001	Arnon Amir	ARC9-2000-0093-US1	7103

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EXAMINER	
CHAU, COREY P	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/757,012	AMIR ET AL.	
	Examiner	Art Unit	
	Corey P. Chau	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The finality of the rejection of the last Office action is vacated due to new interpretation. Rejections based on new interpretation and newly cited reference follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6757397 to Buecher et al. (hereafter as Buecher).

4. Regarding Claim 9, Buecher discloses a computer-implemented method for generating a gain adjust signal to establish an audio output level (Figs. 2 and 7; abstract), comprising:

receiving at least one person-microphone position signal representative of a position of a person relative to a microphone (Figs. 2 and 7; column 1, lines 13-44);

determining a gain adjust signal based at least in part on the person-microphone position signal (Figs. 2 and 7; column 3, line 24 to column 4, line 22; column 4, line 50 to column 5, line 14); and

using the gain adjust signal to establish the audio output level, wherein the person-microphone position is recorded, then the gain adjust signal is determined after a recording of the person (i.e. the position of the sound source is determined on the basis of the recorded video data reads on "after a recording of the person" because the claims does not limiting to how much video data has been recorded or how much time after the recording)(abstract; column 2, lines 6-12; column 3, lines 24-62).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6757397 to Buecher in view of U.S. Patent No .5027410 to Williamson et al. (hereafter as Williamson).

7. Regarding Claim 10, Buecher discloses a computer-implemented method for generating a gain adjust signal to establish an audio output level (Figs. 2 and 7; abstract), comprising:

receiving at least one person-microphone position signal representative of a position of a person relative to a microphone (Figs. 2 and 7; column 1, lines 13-44);

determining a gain adjust signal based at least in part on the person-microphone position signal (Figs. 2 and 7; column 3, line 24 to column 4, line 22; column 4, line 50 to column 5, line 14); and using the gain signal to establish the audio output level, wherein the gain adjust signal is a fast response gain adjust signal (Figs. 2 and 7; column 3, line 24 to column 4, line 22; column 4, line 50 to column 5, line 14).

Buecher does not expressly discloses the method further comprises determining a slow response gain adjust signal based on and audio stream.

Williamson discloses an automatic gain control means for controlling the magnitude of an input means (i.e. audio stream) wherein the signal magnitude controlled at a slow rate relative to speech to be within a desired range of magnitudes (Fig. 2; column 2, lines 14-50; claim 14).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Buecher with the teaching of Williamson to incorporate an automatic gain control means for controlling the magnitude of an input means (i.e. audio stream) wherein the signal magnitude controlled at a slow rate relative to speech to be within a desired range of magnitudes.

8. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al., "Speaker Position Detection System Using Audio-visual Information", Fujitsu Study Report, vol. 35, No. 2 (10 pages) (hereafter as Matsuo) in view of U.S. Patent No. 6757397 to Matsuo and U.S. Patent No. 6600824 to Matsuo (hereafter as Matsuo '824).

9. Regarding Clam 11, Matsuo discloses a digital processor programmed to undertake logic for dynamically establishing a gain of an audio system (Figs. 1 and 2), the logic including:

receiving a video stream representative of at least one person and at least one microphone (Fig. 3); and

deriving person-microphone position signals using the video stream (i.e. a speaker position detection system that achieves a high degree of accuracy using a multimodal interface that integrates audio and visual information from a microphone array and camera)(Figs. 2 and 3).

Matsuo discloses a speaker position detection system that achieves a high degree of accuracy, wherein the system can, for example, be combined with a speech enhancement system to make a hand-free telephone system that can be used in a noisy environment, but only generally; no specific hardware or software is taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known speech enhancement systems.

Buecher for example, discloses during a video conference, the calling parties do not always find it easy to look directly in to the camera while simultaneously speaking

directly into the at least one microphone of the videophone system. For example, if the calling parties are working at a personal computer or perusing documents during the video conference, the actual direction in which they are speaking is often not in a direct line with the microphones. This means that incident noise from the environment is also transmitted. Buecher discloses using level adjustment elements to adjust the sensitivity of the at least one microphone in order to ensure that, regardless of the distance between the sound source and the least one microphone, the audible signals from the sound source are received at largely the same volume by the least one microphone. For example, the volume thus remains largely constant when the speech is reproduced at a receiver of the videophone system regardless of the position in which the calling party, as the sound source, is located in from of the camera and regardless of the direction in which he is speaking. In addition, interfering incident noise from the environment of speech source can be greatly suppressed (Figs. 2 and 7; column 1, lines 13-58; column 3, line 63 to column 4, line 26).

Matsuo '824 for example, discloses detecting the distance to the sound source and selects either one of the stereo sound input output or the desired sound enhancement, depending on the distance, wherein the distance to the sound source is detected by performing image information processing based on an image captured by a camera. The gain calculating part 72 calculates the gain amounts of the two outputs according to FIG. 15, based on the results of the detection of the part for detecting the distance to a sound source 71, and adjusts the gain amount of the gain adjusters 73a to 73c (Figs. 14 and 15; column 17, line 62 to column 18, line 67).

It would have been obvious to one having ordinary skill in the art to employ any known speech enhancement systems, such as that of Buecher or Matsuo. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Matsuo with the teaching of Buecher to utilize level adjustment elements to adjust the sensitivity of the at least one microphone in order to ensure that, regardless of the distance between the sound source and the least one microphone, the audible signals from the sound source are received at largely the same volume by the least one microphone and the interfering incident noise from the environment of speech source can be greatly suppressed (i.e. using at least some of the person-microphone position signals, generating audio gain adjust signals for input thereof to the audio system) or to modify Matsuo with the teaching of Matsuo '824 to utilize gain calculating part which calculates the gain amounts of the two outputs based on the results of the detection of the part for detecting the distance to a sound source, and adjusts the gain amount of the gain adjusters (i.e. using at least some of the person-microphone position signals, generating audio gain adjust signals for input thereof to the audio system).

The speaker position detection system of Matsuo can be utilized to achieve high detection rate for the speaker's position in a noisy environment and perform speech enhancements, wherein the speech enhancement comprises level adjustment elements connect to the microphones of Matsuo to adjust the sensitivity of the at least one microphone as a function of the determined position of the speaker in order to ensure that, regardless of the distance between the sound source and the least one microphone, the audible signals from the sound source are received at largely the same

volume by the least one microphone and the interfering incident noise from the environment of speech source can be greatly suppressed or the speaker position detection system of Matsuo can be utilized to achieve high detection rate for the speaker's position in a noisy environment and perform speech enhancements, wherein the speech enhancement comprises gain calculating part which calculates the gain amounts of the two outputs based on the results of the detection of the part for detecting the distance to a sound source, and adjusts the gain amount of the gain adjusters.

Therefore Matsuo as modified discloses using at least some of the person-microphone position signals, generating audio gain adjust signals for input thereof to the audio system.

10. Regarding Claim 12, Matsuo as modified disclose determining an audio gain adjust signal based at least partially on: a distance from a person's mouth to a microphone, or an orientation of a person's head relative to the microphone (Matsuo, Figs. 2 and 3; pages 213-216, sections 2.1 and 2.2).

11. Regarding Claim 13, Matsuo as modified discloses recording at least one calibration person-microphone position signal; recording at least one calibration audio level contemporaneously with the calibration person-microphone position signal; and using the calibration signal and calibration level, generating at least one mapping (Matsuo, Figs. 2 and 3; pages 213-216, sections 2.1 and 2.2; Buecher, Figs. 2 and 7; column 1, lines 13-58; column 3, line 63 to column 4, line 26; Matsuo '824, Figs. 14 and 15; column 17, line 62 to column 18, line 67).

12. Regarding Claim 14, Matsuo as modified discloses using the mapping to generate at least one gain adjust signal based on at least one person-microphone position signal (Matsuo, Figs. 2 and 3; pages 213-216, sections 2.1 and 2.2; Buecher, Figs. 2 and 7; column 1, lines 13-58; column 3, line 63 to column 4, line 26; Matsuo '824, Figs. 14 and 15; column 17, line 62 to column 18, line 67).

13. Regarding Claim 15, Matsuo as modified discloses the gain adjust signal is determined contemporaneously with recording the person (Matsuo, Figs. 2 and 3; pages 213-216, sections 2.1 and 2.2; Buecher, Figs. 2 and 7; column 1, lines 13-58; column 3, line 63 to column 4, line 26; Matsuo '824, Figs. 14 and 15; column 17, line 62 to column 18, line 67).

14. Regarding Claim 16, Matsuo as modified discloses the person is recorded, then the gain adjust signal is determined after the recording of the person (i.e. the position of the sound source is determined on the basis of the recorded video data reads on "after a recording of the person" because the claims does not limiting to how much video data has been recorded or how much time after the recording) (Matsuo, Figs. 2 and 3; pages 213-216, sections 2.1 and 2.2; Buecher, Figs. 2 and 7; column 1, lines 13-58; column 3, line 63 to column 4, line 26; Matsuo '824, Figs. 14 and 15; column 17, line 62 to column 18, line 67).

Conclusion

15. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Division 2615.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4531229 to Coulter discloses an automatic gain control.

U.S. Patent No. 4167752 to Liebler et al. discloses an automatic gain control.

U.S. Patent No. 6151400 to Seligman discloses an automatic gain control.

U.S. Patent No. 5884156 to Gordon discloses a portable communication device.

U.S. Patent No. 4908855 to Ohga et al. discloses an electronic telephone terminal having noise suppression function.

U.S. Patent No.6195572 to Patterson et al. discloses a wireless communication assembly with variable audio characteristics based on ambient acoustic environement.

U.S. Patent No. 6748088 to Schaaf discloses a method and device for operating a microphone system, especially in a motor vehicle.

U.S. Patent No. 6275258 to Chim discloses a voice response image tracking system.

U.S. Patent No. 6005610 to Pingali discloses an audio-visual object localization and tracking system and method therefor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

April 17, 2006
CPC